**Pendulums Lab**

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| Criteria D – Scientific Inquiry | State a focused research question to be tested by an investigation |
| Judge the validity of a hypothesis based on the outcome of the investigation |
| Formulate a hypothesis and explain it using scientific language |
| Suggest improvements to the method or further inquiry when relevant |
| Collect and record data |
| Criteria E – Processing Data | Draw conclusions consistent with the data and supported by scientific reasoning |
| Analyze and interpret data |
| Organize and present data using numerical and visual forms |
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To investigate how the length of a pendulum affects its rate of swinging.

Equipment:

70 cm of string

Paperclip

Ball of plasticine about 3 cm in diameter.

Masking Tape

Measuring device

Stop watch app

Procedure:

1. Get all of the necessary equipment
2. Complete the lab report up to the results section
3. Push the paperclip into your plasticine ball
4. Tie the end of your string to the paperclip
5. Hang the pendulum from the desk using the tape to hold it in place
6. Measure the swing rate using three different pendulum lengths. Measure how long it takes for the pendulum to swing ten times then divide by ten to get the swing rate for one swing.
7. Document these measurements in a table
8. Clean up and put everything away
9. Complete the lab report results, conclusion and evaluation

Pendulums Lab Report Assessment Criteria

**Criterion D – Scientific Inquiry**

**Achievement Level**

Descriptor

**0**

The student does not reach a standard described by any of the descriptors below.

**1-2**

The student attempts to articulate a problem or research question. The method suggested is incomplete. The student attempts to make comments on the method.

**3-4**

The student articulates a problem or research question. The student identifies some appropriate materials and equipment and writes a simple method, attempting to identify some of the variables and controls involved and how to control and manipulate them. The student makes comments on the method. The student attempts to suggest improvements to the method.

**5-6**

The student articulates a problem or research question. The student identifies appropriate materials and equipment and writes a simple method, identifying the variables and controls involved and how to control and manipulate them. The student makes comments on the method and the quality of the data collected. The student makes comments on how the outcome of the investigation helps to answer the research question. The student can suggest improvements to the method.

**Criterion E – Processing Data**

**Achievement Level**

Descriptor

**0**

The student does not reach a standard described by any of the descriptors below.

**1-2**

The student collects some data and attempts to record it in a suitable format. The student organizes transforms and presents data in simple numerical or visual forms, with some errors or omissions. The student attempts to draw a conclusion but this is not consistent with the interpretation of the data.

**3-4**

The student collects sufficient relevant data and records it in a suitable format. The student organizes, transforms and presents data in simple numerical and/or visual forms, with a few errors or omissions. The student states a trend, pattern or relationship shown in the data. The student draws a conclusion consistent with the interpretation of the data.

**5-6**

The student collects sufficient relevant data and records it in a suitable format. The student organizes, transforms and presents data in simple numerical and/or visual forms logically and correctly. The student states a trend, pattern or relationship in the data and uses the data to convey understanding/interpretation. The student draws a conclusion based on the interpretation of the data and asks questions of the type: "What might have caused...?", "How can we explain what happened using what we know about science...?".